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| PRODUCT / PROCESS CHANGE NOTIFICATION |
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|-------------------|--|
| 1. PCN basic data | |
|-------------------|--|

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|----------------------|---|---|
| 1.1 Company |  | STMicroelectronics International N.V |
| 1.2 PCN No. | | ADG/21/12862 |
| 1.3 Title of PCN | | Implementation of ProBand & HIC for Acepack SMIT packaging |
| 1.4 Product Category | | STG5B200M65DF2AG STPSC40H12-M2Y STTD6050H-12M2Y STTH60RQ06-M2Y STPSC60H12-M3Y STTN6050H-12M1Y STTH120RQ06-M2Y |
| 1.5 Issue date | | 2021-06-17 |

| | |
|-------------|--|
| 2. PCN Team | |
|-------------|--|

| | |
|---------------------------|--------------------------|
| 2.1 Contact supplier | |
| 2.1.1 Name | ROBERTSON HEATHER |
| 2.1.2 Phone | +1 8475853058 |
| 2.1.3 Email | heather.robertson@st.com |
| 2.2 Change responsibility | |
| 2.2.1 Product Manager | Giuseppe BAZZANO |
| 2.2.2 Marketing Manager | Angelo RAO |
| 2.2.3 Quality Manager | Vincenzo MILITANO |

| | | |
|-----------|--|--|
| 3. Change | | |
|-----------|--|--|

| 3.1 Category | 3.2 Type of change | 3.3 Manufacturing Location |
|--------------|--|---------------------------------|
| Materials | Any indirect material modifications for shipping products in dimensions, material, composition, orientation... | ST subcontractor in Philippines |

| | | |
|--------------------------|--|--|
| 4. Description of change | | |
|--------------------------|--|--|

| 4.1 Description | Old | New |
|---|-------------------------------------|---|
| 4.2 Anticipated Impact on form,fit, function, quality, reliability or processability? | Standard ACEPACK SMIT T&R Packaging | Standard ACEPACK SMIT T&R Packaging, with Protective Band (Model PB10956UC) and Humidity Indicator Card (Model 51060HIC125) |
| 4.2 Anticipated Impact on form,fit, function, quality, reliability or processability? | NO | |

| | | |
|-----------------------------------|--|--|
| 5. Reason / motivation for change | | |
|-----------------------------------|--|--|

| | | |
|----------------------|---|--|
| 5.1 Motivation | In order to improve the packaging method for our ACEPAK SMIT products delivered in T&R, we're going to introduce an additional Protective Band for the reel and a Humidity Indicator Card (HIC) to provide a more secure packaging to the units (protective band) and tighter controls on the MSL requirements of the devices through a moisture/humidity level monitoring. | |
| 5.2 Customer Benefit | LOGISTICS IMPROVEMENT | |

| | | |
|--|--|--|
| 6. Marking of parts / traceability of change | | |
|--|--|--|

| | | |
|-----------------|-------------------------------------|--|
| 6.1 Description | Internal codification and QA number | |
|-----------------|-------------------------------------|--|

| | | |
|----------------------|--|--|
| 7. Timing / schedule | | |
|----------------------|--|--|

| | | |
|-------------------------------------|--------------|--|
| 7.1 Date of qualification results | 2021-06-10 | |
| 7.2 Intended start of delivery | 2021-09-10 | |
| 7.3 Qualification sample available? | Upon Request | |

8. Qualification / Validation

| | | | |
|---|---|-------------------|------------|
| 8.1 Description | 12862 Qualification Plan ProBand & HIC.xlsx | | |
| 8.2 Qualification report and qualification results | Available (see attachment) | Issue Date | 2021-06-17 |

9. Attachments (additional documentations)

12862 Public product.pdf
12862 PCN ProBand & HIC for Acepack SMIT packaging.pdf
12862 Qualification Plan ProBand & HIC.xlsx
12862 HIC and Proband info.pdf

10. Affected parts

| 10. 1 Current | | 10.2 New (if applicable) |
|--------------------------------|--------------------------------|---------------------------------|
| 10.1.1 Customer Part No | 10.1.2 Supplier Part No | 10.1.2 Supplier Part No |
| | STTH60RQ06-M2Y | |

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3M™ Humidity Indicator Cards (HICs)

Humidity Indicator Cards (HICs) are printed with moisture sensitive spots which respond to various levels of humidity with a visible color change from blue to pink. The moisture sensitive spots are made of blotting paper impregnated with cobaltous chloride. The humidity inside dry packed barrier bags can be monitored by including an HIC inside. When the bag is opened, the card can be examined for proper dryness inside the bag.

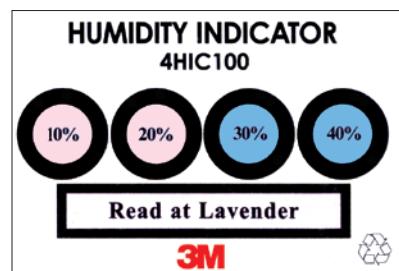
3M™ Humidity Indicator Card 4HIC100

4-Spot Humidity Indicator Card

Card Size: 2" x 3"

Indicates: 10, 20, 30, 40%

Packing: 100 cards in an air-tight can



3M™ Humidity Indicator Card 3HIC125

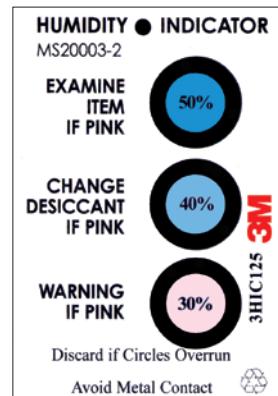
3-Spot Humidity Indicator Card

Card Size: 2" x 3"

Indicates: 30, 40, 50%

Packing: 125 cards in an air-tight can

MS 20003-2 format



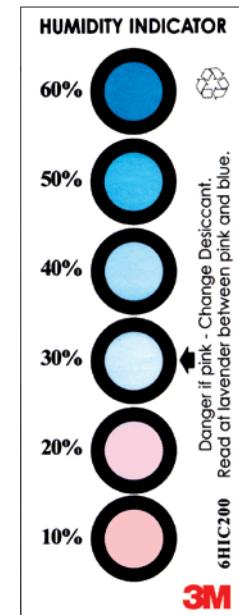
3M™ Humidity Indicator Card 6HIC200

6-Spot Humidity Indicator Card

Card Size: 1 9/16" x 4 3/4"

Indicates: 10, 20, 30, 40%

Packing: 200 cards in an air-tight can

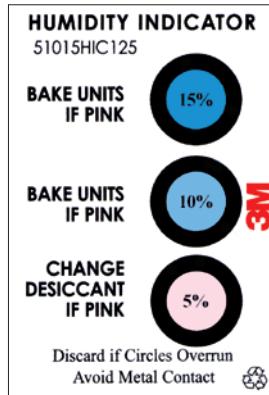


| Part Number | Description |
|-------------|--|
| 4HIC100 | 4-Spot Humidity Indicator Card 100/can |
| 6HIC200 | 6-Spot Humidity Indicator Card 200/can |
| 3HIC125 | 3-Spot Humidity Indicator Card 125/can |

3M™ Humidity Indicator Cards (HICs)

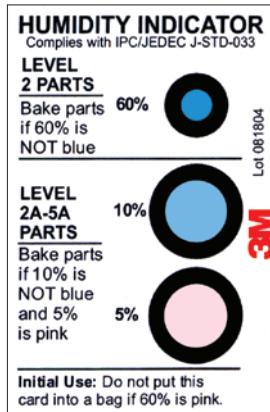
3M™ Humidity Indicator Card 51015HIC125

Card Size: 2" x 3"
Indicates: 5, 10, 15%
Packing: 125 cards in an air-tight can



3M™ Humidity Indicator Card 51060HIC125

This card complies with IPC/ JEDEC J-STD-033C.
Card Size: 2" x 3"
Indicates: 5, 10, 60%
Packing: 125 cards in an air-tight can



| Part Number | Description |
|-------------|---|
| 51015HIC125 | 5,10,15-Spot Humidity Indicator Card 125/Can |
| 51060HIC125 | 5,10, 60-Spot Humidity Indicator Card 125/Can |

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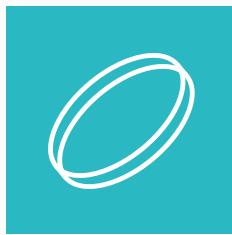
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www.3Mstatic.com



BANDS

PROBAND™



Advantek PROBAND™ is a protective band made of carbon-loaded polystyrene designed to be wound around the diameter of standard size shipping reels of loaded carrier tape. The band covers the outermost wrap of carrier tape to provide added protection for packaged components. The bands are slightly wider than the carrier tape, preventing the flanges from crushing together during dry-pack or handling to protect packaged components from impact damages.

- Available in EIA standard carrier tape width from 8mm to 88mm
- Complete protection for devices when used with the Advantek LOKREEL® and LOKBAND®.
- Tighter-controlled SR version is available
- Available in lengths to fit standard size shipping reels

Shelf Life and Storage

We recommend that Advantek PROBAND™ be used within 5 years from the date of manufacture. Store this product in its original packaging in a climate-controlled environment where temperature ranges from 21°C +/- 17°C (70°F +/- 30°F). Allow the product to stabilize at room temperature prior to use. The mechanical integrity of the product is not affected by humidity.

Configurations

Advantek PROBAND™ is available in various lengths to navigate the circumference of standard diameter reels. The width of the PROBAND™ depends upon the width of the carrier tape used. The following table shows PROBAND™ part numbers with width and thickness for standard carrier width of between 8mm to 88mm. Custom width and thickness is available upon request.

| PROBAND™ Part Numbers | | | |
|-----------------------|--|---|-------------------------|
| Part Number | Length(+/-0.03m) XXX: | Width(+0.7/-0.0mm) YY: | Thickness (+/-0.1mm) |
| PBXXXXYUC | 057=0.57m; 060=0.6m; 063=0.63m; 109=1.09m; 117=1.17m; 120=1.2m; 140=1.4m; 143=1.43m; 218=2.18m. | 08=8.3; 12=12.3; 16=16.3; 24=24.3; 32=32.3; 44=44.3; 56=56.3 | 1.0 |
| PBXXXXYST | | | 1.0 |
| PB050XXXYY | | | 0.5 |
| PBXXXXYUCDBK | | | 1.0 |
| PBXXXXYSTDBK | | | 1.0 |
| PB050XXXYYDBK | | | 0.5 |
| PBXXXXYUC | | 72=72.3 88=88.3 | 1.0 |
| PBXXXXYUCDBK | | | 1.0 |

Note:

1. P/Ns with the suffix of 'ST' are only for Taiwan market.

| PROBAND™ Material Properties | | |
|---|---|---------------------------------|
| Property | Typical Value | Test Method/Standard |
| Surface Resistivity Surface Resistance | <10 ¹² ≥10 ⁵ ohms/square DBK suffix: <10 ⁸ ≥10 ⁶ Ohms. | ASTM D-257 ANSI/ESD STM11.13 |
| Tensile Strength | 3700 PSI | ASTM D-882 |
| Elongation | 40% | ASTM D-882 |
| Specific Gravity | 1.06 g/cc | ASTM D-792 |
| Shelf Life | 5 years | N/A |
| Color | Black | N/A |

Note: The values presented for this product are typical laboratory data and may be changed without notice.



Our wide line of component packaging products offers the flexibility you need to balance price and performance.

| Embossed Carrier Tapes | SFT® | Complex Designs | Basic Designs | Interleaf Tapes | | | |
|--------------------------|----------------|-----------------|--------------------|-----------------|-----------|--------|--------|
| Surftape® | Bare Die | | Micro Thin | | | | |
| Cover Tapes | Heat Activated | | Pressure Sensitive | | | | |
| Packaging Reels | Jumbo™ | Ultra™ | Pro™ | Lite™ | Trimline™ | Mini | |
| Barrier Bags | DRYLOK® | | STATLOK® | | | | |
| Bands | PROBAND® | | LOKBAND® | | | | |
| Humidity Indicator Cards | 1 Spot | 3 Spot | 4 Spot | 6 Spot | | | |
| Desiccant | 1/6 Unit | 1/3 Unit | 1/2 Unit | 1 Unit | 2 Unit | 4 Unit | 8 Unit |



| | |
|----------------|------------------|
| Germany: | +49-761-45546-0 |
| North America: | +1-510-623-1877 |
| Philippines: | +63-49-545-6350 |
| Singapore: | +65-6759-6800 |
| China: | +86-21-5048-4588 |
| Taiwan: | +886-2-2290-1789 |
| Japan: | +81-49-229-5100 |

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Automotive Discrete Group (ADG)
Power Transistor MACRO-Division
IGBT & IPM Business Unit
Discrete & Filter Division
Thyristor Triac and Rectifiers Business Unit
Process Change Notification

Implementation of ProBand & HIC for Acepack SMIT packaging

**Involved Products: STGSB200M65DF2AG
STPSC40H12-M2Y / STTD6050H-12M2Y / STTH60RQ06-M2Y
STPSC60H12-M3Y / STTN6050H-12M1Y / STTH120RQ06-M2Y**

Dear valued Customer,

In order to improve the packaging method for our ACEPAK SMIT products delivered in T&R, we're going to introduce an additional Protective Band for the reel and a Humidity Indicator Card (HIC) to provide a more secure packaging to the units (protective band) and tighter controls on the MSL requirements of the devices through a moisture/humidity level monitoring.

Change details:

| Before: | After: |
|-------------------------------------|---|
| Standard ACEPACK SMIT T&R Packaging | Standard ACEPACK SMIT T&R Packaging, with Protective Band and Humidity Indicator Card Protective Band (Model PB10956UC) Humidity Indicator Card (Model 51060HIC125) |

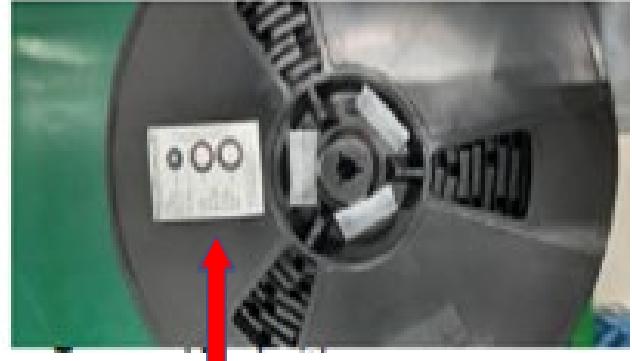
Standard Packaging



New Packaging



Protective band



Humidity Indicator Card

Qualification program and results availability:

The qualification plan and data brief are provided in attachment to this document.

Samples availability:

Samples of product with the new packaging method are available.

Change implementation schedule:

The new packaging method is expected to be implemented starting from week 36 /2021.

Marking and traceability:

Unless otherwise stated by customer specific requirements, the traceability of the change will be ensured by the standard tracecode.

Yours faithfully,



Public Products List

Public Products are off the shelf products. They are not dedicated to specific customers, they are available through ST Sales team, or Distributors, and visible on ST.com

PCN Title : Implementation of ProBand & HIC for Acepack SMIT packaging

PCN Reference : ADG/21/12862

Subject : Public Products List

Dear Customer,

Please find below the Standard Public Products List impacted by the change.

| | | |
|-----------------|----------------|------------------|
| STTD6050H-12M2Y | STTH60RQ06-M2Y | STGSB200M65DF2AG |
|-----------------|----------------|------------------|



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